

## VZ SPEECH SYNTHESISER

### Running the Program - TAPE OR DISK

THIS PROGRAM IS AN EDITOR ONLY.

Run - ORSPEECH on a 6K VZ-200

or - TALKER on a 24K VZ-200 or any VZ-300 combination.

1 - CRUN or RUN "TALKER"

The Program will 'SIGN ON' with a message. This message can be called any time with 'SAM', 'DCP' or 'RUN'.

The ALLOPHONES are Entered as a 2 Character entry.

E.G. - HH EH LL OW P2 will SAY HELLO.

Where in the Tandy Allophone List, examples like TT2, KK3 etc have been changed to 2 Characters. E.G. instead of KK3 you will find KR, this has been done in an attempt to make entries simpler and have more meaning. the Allophone Number stays the same as it is this Number only which is sent to the Speech Synthesiser.

A Modified List has been included, use this List and the Tandy booklet together.

### HOW TO USE

To make the Synth' SAY the word 'HELLO', type in at the Cursor -

```
.. HH <RET>
EH "
LL "
OW "
```

You will see the Allophone and it's number appear on the screen as you type them in.

After typing this in, enter at the Cursor SAY and <RET>

You will hear the Synth' SAY the word HELLO. (If you don't then check your entries and / or your P.C.Board).

The colons are entered by the program itself.

DCP - will delete the whole entry (word/phrase).

RUN - will RERUN the Program from the Start including the Sign On.

SAM - will SAY the Sign On message.

QQQ - will quit the program and take the Computer back to it's default value of 50 bytes clear.

When You have on the screen the words or phrase that you want, and the way that you want it to sound then take note of the ALLOPHONE NUMBERS, these can then be used in DATA Statements etc in other programs. Breaking the program and Printing L\$ and YY\$ will also give the required information.

There is NO 'Save Data' to Tape or Disk feature provided as it is felt that it isn't necessary.

Along with the previous routines, there are 3 others in the program that work, but as they have minor bugs in them, access to them via the MENU has not been provided yet.

The following are the 3 routines and descriptions of how to use them.

1> CHN - To ExChange an Allophone. You enter the Position and Change divided by a comma.

E.G. You have the word HELLO on the screen and would like to change the pronunciation.

TYPE in CHN <ret> The Question - ENTER POS & CHANGE ? will appear, type in 2,AH (note the comma) <ret>.

The Screen will clear and reappear with the change been made. Type in SAY <ret> and note the difference. As the routine is at the moment, when the change is made back to the screen, the number list is not correct, but, if you 'BREAK' the program, Print L\$ and Print YY\$, the correct numbers are printed.

2> DLE - Delete the Last Entry. This routine is for deleting the last Allophone Entry.

3> DEL - This routine is for deleting an Allophone from within the Word or Phrase.

These 3 routines can be made operative in the program by deleting the REM'S from the start of the appropriate lines at the INPUT MENU CHECK for A\$, they are easy to find. They still appear on the Screen Menu.

Although there are only 21 Positions shown on the screen, if you continue entering Allophones past this number, they will appear on the screen, BUT will over write other information. These extra entries are 'legal/valid' and will be operated on in the usual manner.

SAM and QQQ do not appear on the MENU.

Three programs come with Your purchase :-

1) - OUT TEST this runs through and sounds all the Allophones. There is a short timing loop to slow down the Output, this loop is not in either of the Main Programs.

2) - ORSPEECH this program is for running on a Standard 6K VZ-200 and does not have the 'Sign on' message.

3) - TALKER is for running on a 24K VZ-200 or either VZ-300 combination (it has the 'sign on' message).

<RET> = Press the RETURN KEY

I hope this is clear -

IF YOU have any problems Do Not hesitate to contact me.

DAVID BOYCE

41 HEATHER DRIVE

CHRISTIE DOWNS 5164,

SOUTH AUSTRALIA

## CONSTRUCTION OF THE P.C.BOARD.

1> Check the Board. It doesn't need to be cleaned as the Board has been coated and the Tracks will Solder quite easily.

2> Install all the links before the socketts as there are 3 links under the 'SPO' Chip.

3> Note - Although the board is designed to (must) run on 5 VOLTS, there is provision for a 5 VOLT Regulator to be mounted on the track-side of the P.C.B. to allow the use of a Plug Pack (9-15 V @ 300ma).

4> Before connecting to the Computer, and installing any chips, check for shorts and dry solder joints.

5> Apply 5 Volts and check again for correct voltage readings before inserting chips.

6> Pin 1 for all chips is marked with a dot on the board.

7> There are only 10 wires connecting to the Printer Interface. The power.supply for the P.C.B could be taken from the Computer but it is near it's limit anyway, so use a regulated (5 volt) external supply. See step 3 above.

See the overlay diagram for wiring details.

8> I recommend socketts for ALL the chips, especially the SPO chip.

9> Run a wire to the Back of the 3 POTS to the Earth Track..

10> Note -: Although the track work of the Overlay is reasonably Black, you are looking at the Component Side of the Board. The P.C.Board Overlay may be shown oversize.

Notice the words ' SPEECH SYNTH ' are reversed when looking at the Overlay Pattern.

The Board, Speaker and controls can be all mounted in a large Plastic Jiffy Box, although a Metal or Wooden one would be better.

If You follow the diagrams the Board will work as designed.

Again , If in doubt You can contact me on 08 3846574 or write to 41 HEATHER DRIVE CHRISTIE DOWNS 5164 STH. AUST.

AS this project is an add-on I must WARN the constructor that I cannot be held responsible for any damage to any part of his equipment.

1 2 3 4 5 6 7 8 9 10 11

12 13 14 15 16 17 18 19 20 21

ENTER ALLOPHONE?

TO HEAR SOUND USE <SAY>  
TO CHANGE ALLOPHONE USE <CHN>  
TO DELETE USE <DEL>  
TO DELETE LAST ENTRY USE <DLE>  
DELETE COMPLETE PHRASE <DCP>  
TO RE-RUN <RUN>

1 2 3 4 5 6 7 8 9 10 11  
HH:EH:LL:OW:P2:

12 13 14 15 16 17 18 19 20 21

27 7 45 53 1

ENTER ALLOPHONE?

TO HEAR SOUND USE <SAY>  
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1 2 3 4 5 6 7 8 9 10 11  
HH:EH:LL:OW:P2:

12 13 14 15 16 17 18 19 20 21

27 7 45 53 1

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TO HEAR SOUND USE <SAY>  
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TO RE-RUN <RUN>

# ALLOPHONE TABLE

## Pauses

- Ø P1 10 ms use before voiced stops and affricates
- 1 P2 30 ms " " " " "
- 2 P3 50 ms use before voiceless stops and voiced fricatives  
also between words
- 3 P4 100 ms between clauses and sentences
- 4 P5 200 ms " " " "

## SHORT VOWELS These can be repeated

- 7 EH end, bend, left, letter
- 12 IH fitting, sit, little
- 15 AH succeed, uncle
- 23 AW aught, daughter
- 24 OH hot, john
- 26 AA fat, hat, rat, cat
- 30 UU cook, book, cookie

## LONG VOWELS

- 5 OY toy, boy, joy
- 6 IY sky, I (self)
- 19 EE see, ski
- 20 EY great, beige
- 22 UW to
- 31 OO food
- 32 OU out, down
- 53 OW snow, now
- 62 EL angle, saddle

## R-COLOURED VOWELS

- 47 AI hair, repair, square
- 51 ER computer, summer
- 52 IR bird, burn, fir
- 58 OR store, score
- 59 AR farm, alarm
- 60 YR clear, zero

## RESONANTS

- 14 RR read, rural
- 39 RA brain, rain, rat
- 49 YU computer
- 25 YY yes
- 45 LL luck, lake, left
- 46 WW wool

## AFFRICATES

- 10 JH jury, dodge, joy
- 50 CH church

## VOICED FRICATIVES

- 18 DH they
- 54 TH bathe, they
- 35 VV even, vest
- 43 ZZ zoo, zero
- 38 ZH azure, beige

## VOICELESS FRICATIVES

- 29 TI thin
- 40 FF fire, food, four
- 55 SS sat, vest, sky, ski
- (29, 40, 55 double up for initial positions)
- 27 HH he, her, him, hymn
- 57 HO hoe
- 37 SH shirt, ship
- 48 WH while, wig

## VOICELESS STOPS

- 17 TS its, part, two
- 13 TT to
- 42 KC computer, can't, cat, clown
- 41 KK sky, ski
- 8 KR crane, comb, collide
- 9 PP pub, pit

## NASAL

- 16 MM milk
- 11 NN earn, thin, clown
- 56 NO no
- 44 NG bans, anchor, uncle

## VOICED STOPS

- 28 BU rib, dab
- 63 BB big, business
- 21 DU could
- 33 DD do
- 36 GU guest
- 61 GG got, go
- 34 GH wig

## EXAMPLES

FOR - 40 58  
FIR - 40 52

SKY - 55 41 6  
ZERO - 43 60 53

LEFT - 45 7 40 13  
RIGHT - 39 6 13

SPEECH ALLOPHONE COMPARISON LIST

TANDY	MOD	NUMBER	EXAMPLE
PA1	P1	0	PAUSE
PA2	P2	1	PAUSE
PA3	P3	2	PAUSE
PA4	P4	3	PAUSE
PA5	P5	4	PAUSE
OY	OY	5	bOY
AY	IY	6	skY, I
EH	EH	7	End
KK3	KR	8	CRane
PP	PP	9	Pub, Pit
JH	JH	10	Jury, Jay
NN1	NN	11	earN, thin
IH	IH	12	lIttle
TT2	TT	13	To, Too
RR1	RR	14	Read
AX	AH	15	Uncle
MM1	MM	16	Milk
TT1	TS	17	iT's, part
DH1	DH	18	THey
IY	EE	19	sEE, ski
EY	EY	20	grEAt
DD1	DU	21	couLD
UW1	UW	22	too, tO
AO	AW	23	AUght
AA	OH	24	hOt, jOHN
YY2	YY	25	Yes
AE	AA	26	hAt, cAt
HH1	HH	27	He, Hymn
BB1	BU	28	riB, daB
TH	TI	29	THin
UH	UU	30	cOOk
UW2	OO	31	fOOD
AW	OU	32	OUT, dOwn
DD2	DD	33	Do
GG3	GH	34	wiG
VV	VV	35	eVen
GG1	GU	36	Guest
SH	SH	37	SHip
ZH	ZH	38	aZURE
RR2	RA	39	Rain

SPEECH ALLOPHONE COMPARISON LIST

TANDY	MOD	NUMBER	EXAMPLE
PA1	P1	0	PAUSE
PA2	P2	1	PAUSE
PA3	P3	2	PAUSE
PA4	P4	3	PAUSE
PA5	P5	4	PAUSE
OY	OY	5	bOY
AY	IY	6	skY, I
EH	EH	7	End
KK3	KR	8	CRane
PP	PP	9	Pub, Pit
JH	JH	10	Jury, Joy
NN1	NN	11	earN, thiN
IH	IH	12	lIttle
TT2	TT	13	To, Too
RR1	RR	14	Read
AX	AH	15	Uncle
MM1	MM	16	Milk
TT1	TS	17	iT's, part
DH1	DH	18	THey
IY	EE	19	sEE, ski
EY	EY	20	grEAt
DD1	DU	21	couLD
UW1	UW	22	too, to
AO	AW	23	AUght
AA	OH	24	hOt, jOHN
YY2	YY	25	Yes
AE	AA	26	hAt, cAt
HH1	HH	27	He, Hymn
BB1	BU	28	riB, daB
TH	TI	29	THin
UH	UU	30	cOOk
UW2	OO	31	food
AW	OU	32	OUT, dOwn
DO2	OO	33	Do
GG3	GH	34	wiG
VV	VV	35	eVen
GG1	GU	36	Guest
SH	SH	37	SHip
ZH	ZH	38	aZUre
RR2	RA	39	Rain

Keworked ORIGINAL.

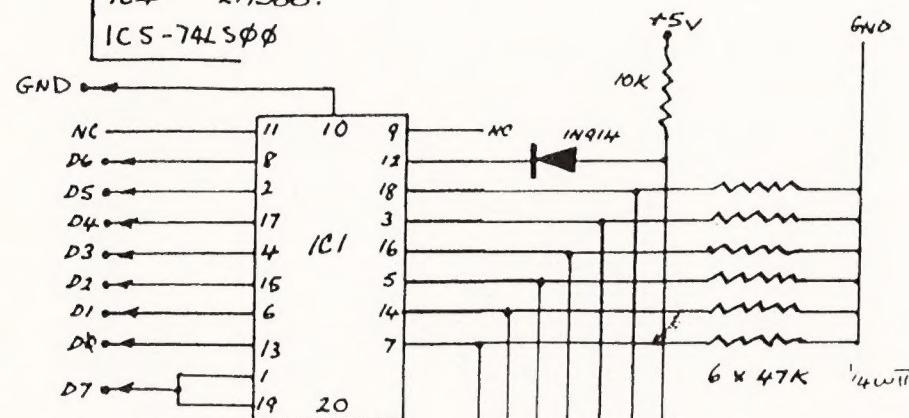
IC1 - 74LS244

IC2 - SPA256-ALZ (TANDY - 276-1784) (AVAILABLE FROM 'MARKINS' U.K.)

IC3 - 74LS629 OR LS124.

IC4 - LM386.

IC5 - 74LS00



V2-200  
SPEECH SYNTHESISER

USES Port D IN FOR TEST ON BUSY LINE.

Sept 1984

### Reference Books

ELECTRONICS and Computing Monthly

Feb 1984 P61

March 1984 P25

CX - trimmer Cap  
DSE - R2930

### Resistors

10Ω × 1

470Ω × 1

4K7Ω × 1

10KΩ × 2

471CΩ × 7

100KΩ × 2

### Caps

27pF ±1 ceramic (18-33pF)

470pF ±1 ceramic

±1uf × 4 ceramic

2.2uf ±1 TANT 16V

100uf / 16V × 2

100uf / 16V × 1

470uf / 16V × 1

### other

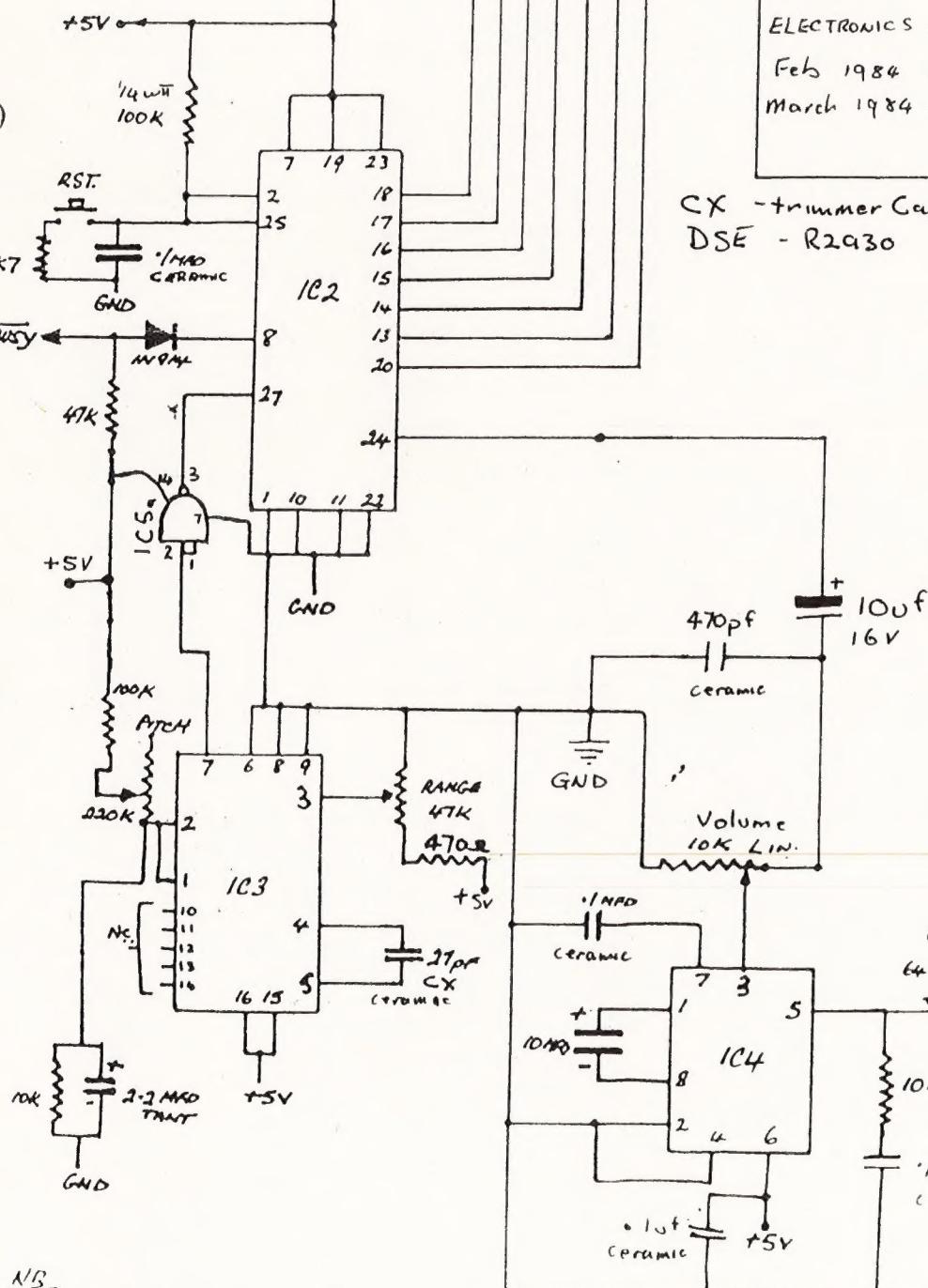
10K Lin pot × 1

47K pot × 1

250K pot × 1

PUSH BUTTON × 1

810kr 8Ω × 1



N.B.

SUPPLY LINE DECOUPLING  
NOT SHOWN. USE STANDARD UNIT IF NECESSARY.

## Hook up sheet

Connecting The Speech Board To  
The Computer via the Printer Interface.

